

## PATENT COOPERATION TREATY

PCT

## NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Commissioner  
 US Department of Commerce  
 United States Patent and Trademark  
 Office, PCT  
 2011 South Clark Place Room  
 CP2/5C24  
 Arlington, VA 22202  
 ETATS-UNIS D'AMERIQUE  
 in its capacity as elected Office

<b>Date of mailing (day/month/year)</b> 27 March 2001 (27.03.01)	<b>Applicant's or agent's file reference</b> 0994.00126
<b>International application No.</b> PCT/US00/17341	<b>Priority date (day/month/year)</b> 23 June 1999 (23.06.99)
<b>International filing date (day/month/year)</b> 23 June 2000 (23.06.00)	
<b>Applicant</b> KATTI, Kattesh, V. et al	

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:

19 January 2001 (19.01.01)

☐ in a notice effecting later election filed with the International Bureau on:
2. The election ☒ was
☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

<b>The International Bureau of WIPO</b> 34, chemin des Colombettes 1211 Geneva 20, Switzerland  Facsimile No.: (41-22) 740.14.35	<b>Authorized officer</b>  Zakaria EL KHODARY  Telephone No.: (41-22) 338.83.38
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(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
28 December 2000 (28.12.2000)

PCT

(10) International Publication Number  
**WO 00/78306 A1**

(51) International Patent Classification<sup>7</sup>: **A61K 31/28**

J. [US/US]; 3220 S. Old Ridge Road, Columbia, MO 65203 (US).

(21) International Application Number: **PCT/US00/17341**

(22) International Filing Date: **23 June 2000 (23.06.2000)**

(74) Agents: **KOHN, Kenneth, I. et al.**; Kohn & Associates, Suite 410, 30500 Northwestern Highway, Farmington Hills, MI 48334 (US).

(25) Filing Language: **English**

(26) Publication Language: **English**

(30) Priority Data:  
60/140,576 23 June 1999 (23.06.1999) US  
60/156,151 27 September 1999 (27.09.1999) US

(81) Designated States (*national*): AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.

(71) Applicant (*for all designated States except US*): **THE CURATORS OF THE UNIVERSITY OF MISSOURI** [US/US]; 615 Locust Street Building, 3rd floor, Columbia, MO 65211-1400 (US).

(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

(72) Inventor: **KAMEI, Hideo** (deceased).

**Published:**

— *With international search report.*

(72) Inventors; and

(75) Inventors/Applicants (*for US only*): **KATTI, Kattesh, V.** [IN/IN]; 3901 Woods Edge Road, Columbia, MO 65203 (US). **VOLKERT, Wynn, A.** [US/US]; 2808 Butternut Ct., Columbia, MO 65203 (US). **HOFFMAN, Timothy,**

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

(54) Title: **GOLD-CONTAINING CHEMOTHERAPEUTIC AGENTS**

(57) Abstract: There is provided a complex for use as a therapeutic pharmaceutical, the complex has a ligand containing at least one hydroxyalkyl phosphine donor group bound to a gold atom to form a stable gold-ligand complex. Also provided is a method of treating cancer by administering an effective amount of a complex having a ligand of at least one hydroxyalkyl phosphine group bound to a gold atom to form a stable gold-ligand complex. Also provided is a method of preventing the metastasis of cancer and arresting cell growth by administering an effective amount of a complex having a ligand of at least one hydroxyalkyl phosphine group bound to a gold atom to form a stable gold-ligand complex.

WO 00/78306 A1

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US00/17341

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : A61K 31/28

US CL : 514/108, 495

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 514/108, 495

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5,843,993 A (KATTI et al.) 01 December 1998, see entire document	1-7

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

* Special categories of cited documents:	*T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
*A* document defining the general state of the art which is not considered to be of particular relevance	*X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
*E* earlier document published on or after the international filing date	*Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
*L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	*A* document member of the same patent family
*O* document referring to an oral disclosure, use, exhibition or other means	
*P* document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search

07 SEPTEMBER 2000

Date of mailing of the international search report

03 OCT 2000

Name and mailing address of the ISA/US  
Commissioner of Patents and Trademarks  
Box PCT  
Washington, D.C. 20231

Facsimile No. (703) 305-3230

Authorized officer

*Frederick Krauss*  
FREDERICK KRAUSS

Telephone No. (703) 308-1235

## PCT

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

08 OCT 2001

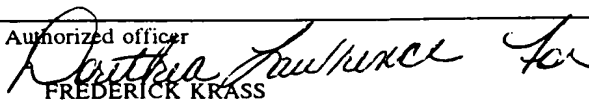
(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 0994.00126	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/US00/17341	International filing date (day/month/year) 23 JUNE 2000	Priority date (day/month/year) 23 JUNE 1999
International Patent Classification (IPC) or national classification and IPC IPC(7): A61K 31/28 and US·Cl.: 514/108, 495		
Applicant THE CURATORS OF THE UNIVERSITY OF MISSOURI		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 3 sheets.
- ☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority. (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).
- These annexes consist of a total of \_\_\_\_\_ sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of report with regard to novelty, inventive step or industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability: citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 19 JANUARY 2001	Date of completion of this report 12 OCTOBER 2001
Name and mailing address of the IPEA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231	Authorized officer  FREDERICK KRASS
Facsimile No. (703) 305-3230	Telephone No. (703) 308-1235

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/US00/17341

## I. Basis of the report

## 1. With regard to the elements of the international application:\*

☒ the international application as originally filed☒ the description:

pages 1-20, as originally filed

pages NONE, filed with the demand

pages NONE, filed with the letter of

☒ the claims:

pages 21, 22, as originally filed

pages NONE, as amended (together with any statement) under Article 19

pages NONE, filed with the demand

pages NONE, filed with the letter of

☒ the drawings:

pages 1-6, as originally filed

pages NONE, filed with the demand

pages NONE, filed with the letter of

☒ the sequence listing part of the description:

pages NONE, as originally filed

pages NONE, filed with the demand

pages NONE, filed with the letter of

## 2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language \_\_\_\_\_ which is:

☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).☐ the language of publication of the international application (under Rule 48.3(b)).☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

## 3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

☐ contained in the international application in printed form.☐ filed together with the international application in computer readable form.☐ furnished subsequently to this Authority in written form.☐ furnished subsequently to this Authority in computer readable form.☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.4. ☒ The amendments have resulted in the cancellation of:☒ the description, pages NONE☒ the claims, Nos. NONE☒ the drawings, sheets/fig. NONE5. ☐ This report has been drawn as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).\*\*

\* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

\*\*Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/US00/17341

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement****1. statement**

Novelty (N)	Claims <u>5-7</u>	YES
	Claims <u>1-4</u>	NO
Inventive Step (IS)	Claims <u>NONE</u>	YES
	Claims <u>1-7</u>	NO
Industrial Applicability (IA)	Claims <u>1-7</u>	YES
	Claims <u>NONE</u>	NO

**2. citations and explanations (Rule 70.7)**

Claims 1-4 lack novelty under PCT Article 33(2) as being anticipated by KATTI ET AL, which discloses therapeutic agents comprising stable gold-hydroxyalkyl phosphine complexes.

Claims 5-7 lack an inventive step under PCT Article 33(3) as being obvious over KATTI ET AL. KATTI ET AL generally teach the use of stable gold-hydroxyalkyl phosphine complexes as "therapeutic agents", but do not specifically disclose the treatment of cancer. It is clear from the background discussion of column 1, lines 21-25, however, that it is well-known in the art to use gold complexes to treat cancer. Accordingly, it would have been obvious to have used the gold complexes of KATTI ET AL for chemotherapy since that is a well-known utility for such agents.

Claims 1-7 meet the criteria set out in PCT Article 33(4); the applicability of the claimed compositions and methods to the medical/pharmaceutical industries is self-evident.

----- NEW CITATIONS -----  
NONE

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US00/17341

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : A61K 31/28

US CL : 514/108, 495

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 514/108, 495

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

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Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5,843,993 A (KATTI et al.) 01 December 1998, see entire document	1-7

☐

Further documents are listed in the continuation of Box C.

☐

See patent family annex.

* Special categories of cited documents:	*T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
*A* document defining the general state of the art which is not considered to be of particular relevance	*X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
*E* earlier document published on or after the international filing date	*Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
*L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	*A* document member of the same patent family
*O* document referring to an oral disclosure, use, exhibition or other means	
*P* document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search

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Facsimile No. (703) 305-3230

Authorized officer

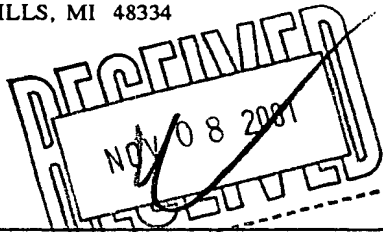
FREDERICK KRASS

Telephone No. (703) 308-1235

# PATENT COOPERATION TREATY

From the  
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To: KENNETH I. KOHN  
KOHN & ASSOCIATES  
30500 NORTHWESTERN HIGHWAY  
SUITE 410  
FARMINGTON HILLS, MI 48334



## PCT

### NOTIFICATION OF TRANSMITTAL OF INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Rule 71.1)

Date of Mailing  
(day/month/year)

**05 NOV 2001**

Applicant's or agent's file reference

0994.00126

#### IMPORTANT NOTIFICATION

International application No.

PCT/US00/17341

International filing date (day/month/year)

23 JUNE 2000

Priority Date (day/month/year)

23 JUNE 1999

Applicant

THE CURATORS OF THE UNIVERSITY OF MISSOURI

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.
4. **REMINDER**

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices)(Article 39(1))(see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

Name and mailing address of the IPEA/US  
Commissioner of Patents and Trademarks  
Box PCT  
Washington, D.C. 20231

Facsimile No. (703) 305-3230

Authorized officer

FREDERICK KRASS

Telephone No. (703) 308-1235



# PATENT COOPERATION TREATY

## PCT

### INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)


Applicant's or agent's file reference 0994.00126	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/US00/17341	International filing date (day/month/year) 23 JUNE 2000	Priority date (day/month/year) 23 JUNE 1999
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Date of submission of the demand  19 JANUARY 2001	Date of completion of this report  12 OCTOBER 2001
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Facsimile No. (703) 305-3230	Telephone No. (703) 308-1235

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/US00/17341

**I. Basis of the report****1. With regard to the elements of the international application:\***☒ the international application as originally filed☒ the description:

pages 1-20 , as originally filed  
pages NONE , filed with the demand  
pages NONE , filed with the letter of \_\_\_\_\_

☒ the claims:

pages 21, 22 , as originally filed  
pages NONE , as amended (together with any statement) under Article 19  
pages NONE , filed with the demand  
pages NONE , filed with the letter of \_\_\_\_\_

☒ the drawings:

pages 1-6 , as originally filed  
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pages NONE , filed with the letter of \_\_\_\_\_

☒ the sequence listing part of the description:

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☒ the claims, Nos. NONE  
☒ the drawings, sheets/fig NONE

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International application No.

PCT/US00/17341

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

## 1. statement

Novelty (N)

Claims 5-7 YESClaims 1-4 NO

Inventive Step (IS)

Claims NONE YESClaims 1-7 NO

Industrial Applicability (IA)

Claims 1-7 YESClaims NONE NO

## 2. citations and explanations (Rule 70.7)

Claims 1-4 lack novelty under PCT Article 33(2) as being anticipated by KATTI ET AL, which discloses therapeutic agents comprising stable gold-hydroxyalkyl phosphine complexes.

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----- NEW CITATIONS -----  
NONE